

ADVERTISING PANEL FOR CONVEYOR

Background of the Invention

The present invention is directed toward an advertising panel for a conveyor and more particularly, toward an advertising panel that requires no modification to an existing conveyor base plates and which allows the advertising copy to be easily and quickly changed.

Conveyors for carrying items from one location to another location are well-known in the art. These conveyors are often configured as endless, essentially circular dispensing apparatus and are frequently used, for example, for transporting baggage at airports. Such conveyors are often called carousels because the baggage is placed onto plates or panels of the conveyor from a centrally located distributing point making the baggage available to the passengers around the periphery of the apparatus at a remote location.

Two general types of carousel conveyor apparatus are known and in wide use. The first utilizes rectangularly shaped plates while the other employs crescent shaped plates. Conveyors using rectangular plates are generally oval in shape with the rectangular panels overlapping and sloping downward toward the peripheral outer edge of the conveyor. The crescent panels are generally used on flat conveyors with an oval or a serpentine configuration.

Frequently, advertisements are placed on the center nonmoving section of the carousel. These advertisements are often used to promote local business or to advertise car rental companies or different airlines. The advertising area is extremely limited since the people to whom the advertising is directed generally congregate in a limited number of specific positions around the carousel to retrieve their baggage. As a result, the audience sees only a small section of the total advertising that could be placed on the nonrotating section of the carousel.

In order to increase advertising space, advertisements can be placed directly on the moving conveyor plates. These plates provide a much larger advertising space. As a result, the advertisements can be viewed by everyone no matter where they may be assembled along the length of the conveyor.

Carousel advertisements are typically affixed to the conveyor plates either by an adhesive or using screws to pass through an overlying transparent sheet and into the conveyor plate. The use of screws in conventional systems requires modification to the conveyor plates in order to accept the same. On the other hand, the use of adhesives to affix the advertisements makes subsequent removal difficult and renders the advertisement difficult or impossible to reuse.

Systems have been proposed to improve the manner in which advertising may be carried by a carousel conveyor. U.S. Patent No. 5,311,980, issued to Munkner et al., for example, discloses printing advertisements on sheets of polyethylene, or similar material, and affixing them directly to the conveyor plates by way of a pressure sensitive adhesive. One of the main disadvantages of such sheets, however, is their

poor durability. Baggage carried on the conveyor tends to scratch and tear the sheet material. In addition, removal of sheet material from conveyor plates is time-consuming requiring either peeling off the sticker and removing the adhesive left behind or replacing the entire plate with a new panel with a new advertisement sheet. The same problem occurs when it is simply desired to change the advertisement even if the advertising sheet is not damaged.

U.S. Patent No. 5,165,526 to Conklin Jr. discloses a conveyor system with conveyor panels that are constructed from transparent material. Each transparent conveyor panel has a viewable section and an overlapping section. An advertising sheet is affixed onto the underside of the viewable section of the transparent conveyor panel with an adhesive applied to the top surface of the advertising sheet. Conklin Jr. also discloses the use of ink that is hot stamped directly onto the transparent panels. As in the case of conveyor panels with decals for advertising material, advertising sheets glued to the transparent conveyor panels are difficult to remove limiting the reuse of these panels. Consequently, the entire panel must be removed from the conveyor belt and replaced with a new panel containing a new advertising sheet. Such a system is expensive and time-consuming. Obviously, when the advertising message is hot stamped directly onto the transparent panels, the transparent panel cannot be reused and must be replaced with a new panel having a new hot stamped message.

U.S. Patent No. 5,280,831 to Conklin Jr. discloses a system for use with conveyors that includes a specially designed base belt plate instead of a conventional conveyor plate. The base plate includes a recess defined by spacers extending from at

least two edges of the plate. An advertising sheet is affixed to the underside of a transparent cover with an adhesive and is then affixed by way of screws to the surface of the base plate within the recess. This method of changing advertising sheets is labor intensive. Similar arrangements are shown in Conklin, Jr.'s U.S. Patent No. 6,186,314 and in U.S. Patent No. 6,044,961. These arrangements, however, include means for holding the transparent cover in place without the use of screws or pins within the advertising field.

In U.S. Patent No. 3,849,918 to Mazzocco, Sr. there is disclosed a continuous display device with display panels having a permanent portion and a removable portion. The permanent portion consists of an inner sheet of translucent or transparent plastic material. The removable portion consists of a pair of outer sheets of transparent material that form a pocket into which is inserted an advertising display sheet.

Other relevant systems can be seen in U.S. Patent No. 4,979,591 to Habegger et al and U.S. Patent No. 5,358,094 to Molinaro et al. The former discloses a conveyor belt with advertising indicia on a visible surface. A film of transparent plastic covers the visible surface to protect the advertising indicia. The later patent discloses a conveyor belt of the type to be used at checkout counters with advertisements that adhere to the conveyor belt through electrostatic attraction. Even further, U.S. Patent No. 5,244,080 to Bierbaum discloses an information bearing belt conveyor with two layers. The top viewable layer has windows for receiving inserts with outlines of letters or figures. The shapes of the windows are complementary to the inserts.

All of the foregoing and other advertising systems for conveyors suffer from numerous disadvantages. In some cases, it is extremely difficult, time consuming and expensive to replace part or all of the advertising when necessary or desired. Other systems that make it easy to replace the advertising require extensive or expensive modifications to the conveyor system. There is, therefore, a need for an inexpensive advertising system that will stand up to abuse, that can be applied to conventional conveyor systems without modifying them and which allows for the quick and inexpensive changing of advertising copy.

Summary of the Invention

The present invention is designed to overcome the deficiencies of the prior art discussed above. Accordingly, it is an object of the invention to provide an arrangement and a method of affixing advertisements to conveyor plates in such a way as to facilitate their installation and removal.

It is a further object of the present invention to provide an advertising system for a conveyor that can be secured to the plates of substantially any conveyor.

In accordance with the illustrative embodiments demonstrating features and advantages of the present invention, there is provided an advertising panel system for a conveyor of the type that includes a series of substantially identically shaped plates which move in a closed path. The system includes a plurality of advertising panels having substantially the same shape as the conveyor plates. Each panel includes a base carrier sheet having a lower surface and an upper surface, a

transparent cover sheet having a lower surface and an upper surface and an advertising sheet interposed between the base carrier sheet and the transparent cover sheet. An adhesive on the lower surface of the base carrier connects the advertising panel to the conveyor plate. A plurality of apertures pass through the three sheets of each panel and connectors secure the sheets together. The connectors are comprised of a T-nut that passes upwardly from the lower surface of the base carrier sheet and a screw that passes downwardly through the upper surface of the cover sheet and is threaded into the T-nut. This allows the cover sheet to be removed and reattached whenever it is desired to replace the advertising sheet.

Other objects, features, and advantages of the invention will be readily apparent from the following detailed description of a preferred embodiment thereof taken in conjunction with the drawings.

Brief Description of the Drawings

For the purpose of illustrating the invention, there are shown in the accompanying drawings forms which are presently preferred; it being understood that the invention is not intended to be limited to the precise arrangements and instrumentalities shown.

Figure 1 is a perspective schematic representation of a conventional carousel conveyor utilizing crescent shaped plates;

Figure 2 is an exploded view of a first embodiment of the present invention schematically illustrating the various component parts thereof;

Figure 3 is an enlarged exploded view showing the details of the manner in which the component parts of the invention are joined together;

Figure 4 is a perspective schematic representation of a conventional carousel conveyor utilizing rectangularly shaped plates, and

Figure 5 is an exploded view of a second embodiment of the present invention useful with the conveyor of Figure 4.

Detailed Description of the Preferred Embodiments

Referring now to the drawings in detail wherein like reference numerals have been used throughout the various figures to designate like elements, there is shown in Figure 1 a perspective view of a portion of a conventional carousel conveyor designated generally as 10. Conveyor 10 includes a plurality of substantially identically shaped crescent plates 12 which move along a closed path. The conveyor 10 may be of the type, for example, used in an airport to deliver baggage to waiting passengers.

The conveyor 10 is shown substantially schematically in Figure 1 as the details thereof are well known to persons skilled in the field. Accordingly, it is not believed that a detailed discussion of the conveyor 10 or the manner in which it is constructed or operates is necessary. This is believed to be particularly true with respect to the present invention since the same is adapted to be applied directly to the plates 12 of the conveyor 10 without the need to make any modifications thereto.

The advertising panel of the present invention which is to be applied to the plates 12 is shown in an exploded view in Figure 2 and is designated generally as 14.

The panel 14 includes a base carrier sheet 16 and a transparent cover sheet 18. An advertising sheet 20 is interposed between the base carrier sheet 16 and the transparent cover sheet 18.

As can be seen in Figure 2, the three sheets 16, 18 and 20 all have substantially the same shape and dimensions with respect to their outer periphery. That is, and as explained hereinafter, the thickness dimensions of the three sheets may differ. Furthermore, the overall shape and dimensions of each of the sheets 16, 18 and 20 are substantially the same as the overall shape and dimensions of each of the plates 12 of the conveyor 10.

The base carrier sheet 16 is preferably made from a rigid plastic material having a thickness of approximately $\frac{1}{4}$ of an inch. The transparent cover sheet 18 is preferably made of a hard coat acrylic plastic such as sold under the trademark Lexan. Since the upper surface of the cover sheet 18 will be exposed to substantial wear, it should be made of a material that will not easily crack or scratch.

The advertising sheet 20 interposed between the base carrier sheet 16 and the transparent cover sheet 18 may be made of thin flexible paper or plastic film or the like. Furthermore, while the term "advertising" is being used, it should be readily apparent that the sheet 20 could be carrying a message or other information which may not necessarily be an actual advertisement. Furthermore, and as is well known in the art, a separate advertisement or similar indicia could be printed on each of the individual advertising sheets 20 or each sheet 20 could be part of a much larger advertisement wherein only a portion of the indicia is printed on each of the sheets 20 and the entire

message is conveyed when the advertising panels are assembled in the proper order on the conveyor. Again, this aspect of the invention is well known in the art.

Each of the three sheets 16, 18 and 20 includes a plurality of apertures formed therein which are spaced around their peripheries as shown in Figure 2. Furthermore, the apertures in each of the three sheets are in alignment with the similar apertures in the other two sheets. For example, aperture 22 is formed in the cover sheet 18, aperture 24 is formed in the advertising sheet 20 and aperture 26 is formed in the base carrier sheet 16. Connectors in the form of a T-nut 28 and a screw 30 connect the three sheets together through the apertures.

As shown most clearly in Figure 3, the T-nut 28 includes a head portion 32 and a cylindrical or tubularly shaped body portion 34. The inside of the body portion 34 is threaded as shown at 36. The outer dimension of the body portion 34 is configured so as to be insertable up through the aperture 26. As can be seen, the lower open end of the aperture 26 is enlarged as shown at 38 so that the head 32 of the T-nut 28 can fit therein thereby forming an essentially flush lower surface of the base carrier sheet 16. In this way, when the panel 14 is placed on a plate 12, the head 32 of the T-nut 28 rests on the plate.

Each screw 30 includes a head 40 and a body portion 42 having external threads 44 thereon. The head 40 includes a tapered or chamfered underside 46. In order to allow the top surface of the head 40 of each screw 30 to lie flush with the upper surface of the cover sheet 18, the aperture 22 in the cover sheet is chamfered as shown

at 48 so as to be complementary to the chamfer 46 of the screw. Preferably, both the T-nut 28 and the screw 30 are made of nylon or similar durable material.

An adhesive 50 is applied to the lower surface of the base carrier sheet 16 so that the same can adhere to the conveyor plate 12. This can be done utilizing a double-face adhesive tape or by having the adhesive 50 applied to the lower surface of the sheet 16 and then covered with a release film or the like.

Figures 4 and 5 illustrate a second embodiment of the invention. Figure 4 shows a conventional conveyor 110 having a plurality of substantially rectangularly shaped plates 112. The advertising panel 114 of the present invention is illustrated in Figure 5 and as should be readily apparent to those skilled in the art, is constructed in essentially the same manner as the embodiment shown in Figures 1-3 discussed above. The only difference between the first and second embodiments is in the shape of the sheets that make up the advertising panel 114.

The advertising panel 14 (or 114) of the present invention is utilized in the following manner. With the adhesive 50 exposed, the base carrier sheet 16 is placed on the plate 12 and securely adhered thereto through the use of the adhesive. Prior to this being done, the T-nuts 28 are placed through the apertures 26 so as to extend upwardly. The heads 32 of the T-nuts rest on and are flush with the upper surface of the plate 12. The advertising sheet 20 is then placed on the base carrier sheet 16 and the transparent cover sheet 18 is placed over the advertising sheet 20. Screws 30 then secure the three sheets together. Obviously, the three sheets could be secured together

to form the advertising panel 14 before the base carrier sheet 16 is adhered to the plate 12.

Should it ever be necessary or desirable to change the advertising sheet 20, all that is required is to remove the screws 30. The transparent cover sheet 18 is then taken off to expose the advertising sheet 20. That sheet can then be removed and replaced with a new advertising sheet. The transparent cover sheet 18 is reapplied and secured in place with the screws 30.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and accordingly, reference should be made to the appended claims rather than to the foregoing specification as indicating the scope of the invention.